

Wheat Supply and Demand.¹

THE three issues of "Wheat Studies" noticed here form the preliminary instalments of a monthly series which the notice states is "designed to give a sound, impartial review of the world wheat position and outlook, based upon careful analysis of the various elements in the situation, with due recognition of economic conditions in exporting and importing countries." Numbers 1 and 3 form a continuous record of the vagaries of the wheat market over a period of seventeen months, when the market situation changed from that of being a buyers' to that of a sellers' market, thus allowing of contrasting conditions being compared equitably under almost uniform conditions of exchange and dietary habits.

No. 2 is a bibliography of the sources of the data upon which the main thesis is based.

The cause of low prices in 1923-24, the rise toward the end of the year, the reasons for export by Soviet Russia though crops were insufficient for home needs, and the cause of a marked increase in Oriental demand are all passed under review, and in a quite untechnical manner are explained.

Many interesting and important facts are deduced from the mass of statistics handled by the authors. Dietary changes due to better conditions among the artisan class since the War are having a significant influence upon the *per capita* consumption of wheat. In Great Britain the direction is downward, more meat being eaten, but in Scandinavia the same underlying cause promotes an upward movement owing to the falling off in rye consumption.

Figures are quoted showing that imports are not governed so much by the state of the home crop as by the state of the market. Abundant crops at home and abroad in 1923-24 were accompanied by a large increase in imports into Great Britain. Japan and China were attracted by low prices and consumed a quantity of wheat which is not likely to be a standard demand under the conditions which developed at the end of 1924. One of the most interesting sections of the survey is that explaining the effect of crop prospects changes, political disturbances of the nature of presidential elections, and geographic considerations such as the closing of navigation on the Great Lakes, on the course of wheat prices at Liverpool, Winnipeg, Chicago and Buenos Aires. A remarkably close correlation can be traced in almost all cases.

The series is the result of team-work, and very little time elapses between the data becoming available and the publication of the analysis. Under such conditions the readability and accuracy of "Wheat Studies" are all the more praiseworthy.

¹ "Wheat Studies of the Food Research Institute, vol. i. (Stanford University, California). No. 1, The World Wheat Situation, 1923-24: a Review of the Crop Year; No. 2, Current Sources concerning Wheat Supplies, Movements and Prices: a Select List with Comments; No. 3, Developments in the Wheat Situation, August to December 1924.

Symbiotic Micro-organisms.

IN an article in *Scientia* (April 1925) Prof. U. Pierantoni, of Turin, who has taken a leading part in the investigations on physiological symbiosis, points out that recent researches in this domain have revealed the existence of micro-organisms which are not only useful but also, in the majority of cases, necessary for the life of the superior organism in which they occur, and they are transmitted from parent to offspring. These researches have also made known a new category of organs—termed mycetomes—which owe their functions to the presence in the

protoplasm of their cells of symbiotic organisms, so that these by their specific activity determine the action of the organ. These symbiotic organs are glands the protoplasm of the cells of which, instead of elaborating products of secretion, foster micro-organisms which produce secretions useful to the organism.

The author states that the useful species of micro-organisms outnumber the pathogenic species. Among the examples of symbiotic organs to which Prof. Pierantoni refers are the luminous organs of cephalopods (*Heteroteuthis*, *Rondeletia*, *Sepiola*) which he has investigated, and the luminous organs of certain fishes (*Anomalops*, *Protoblepharon*) investigated by Prof. E. N. Harvey. He points out that these organs are simply cutaneous invaginations which harbour the micro-organisms, and that the thin walls in contact with rich vascular networks protect the cultures while the blood provides the nutrient material required by the micro-organisms. The latter multiply and produce continually new luminous substances which replace those expelled from the organ to the exterior by muscular action under nervous stimulation. In some cases, reflectors and refractors are formed from the neighbouring tissues; these render the light emitted more brilliant.

Another important group of symbiotic organs is the mycetomes in the wall of the intestine and associated organs—*e.g.* in larval and adult insects which feed on wood and blood, and in ticks—which elaborate ferments that facilitate the digestion of wood, cellulose, chitin, etc. A third group of these symbionts is chromogenic. The author observed in 1912 that in certain homopterous insects the symbiotic organ exhibited a bright colour which he attributed to the contained micro-organisms. Other investigators have recently found that the red lac of India produced by the coccid *Tachardia lacca* results from the activity of a micro-organism, allied to the *Blastomyces*, which has been isolated and cultivated. The absorption spectrum of red lac exhibits an affinity with that of carminic acid (from cochineal, also the product of a coccid) and of the red products of the chromogenic *Bacillus prodigiosus*. Prof. Pierantoni believes that we are only at the beginning of a line of inquiry likely to be rich in results in pure and in applied science.

University and Educational Intelligence.

BIRMINGHAM.—Applications are invited for the Walter Myers Travelling Studentship in Pathology, value 300*l.* Information concerning the studentship can be obtained from the Dean of the Medical Faculty of the University. The latest date for the receipt of applications is September 1.

BRISTOL.—In connexion with the recent meeting of the British Medical Association at Bath, the honorary degree of LL.D. has been conferred on Sir Humphry Rolleston, Bart., Regius professor of physic in the University of Cambridge and president of the Royal College of Physicians.

DURHAM.—At a meeting held on July 27 the Council of Armstrong College, Newcastle-upon-Tyne, appointed Prof. J. W. Bews, of Natal University College, Pietermaritzburg, to be professor of botany in succession to Prof. M. C. Potter, retired. Dr. Bews is a native of the Orkney Islands, and was educated at Kirkwall and at the University of Edinburgh. He has been a lecturer in botany at the Universities of Manchester and Edinburgh, and since 1910 has been professor of botany at Pietermaritzburg. His publications include "Grasses and Grasslands of South Africa" (1918), "Flora of Natal and Zululand"

(1921), "Plant Forms and their Evolution in South Africa" (1925), and numerous papers dealing with plant distribution in South Africa.

EDINBURGH.—At the Graduation Ceremonial on July 22 the following were among the honorary degrees conferred:—*LL.D.*: Brig.-General the Hon. C. G. Bruce, chief of the Mount Everest Expedition; Prof. A. S. Eddington, Plumian professor of astronomy and natural philosophy in the University of Cambridge; Prof. R. Muir, professor of pathology, University of Glasgow; Principal C. Grant Robertson, University of Birmingham; Sir H. J. Stiles, Regius professor-emeritus of clinical surgery in the University of Edinburgh.

The degree of *D.Sc.* was conferred on the following:—Mr. A. C. Aitken (Thesis—"The Graduation of Observational Data"); Dr. F. J. Browne (Thesis—"Observations on Still-Birth and Neonatal Death, their Causes, Pathology and Prevention"); Mr. A. T. Cameron (Thesis—"Contributions to the Bio-Chemistry of Iodine and the Thyroid and Related Problems"); Mr. G. Harrower (Thesis—"A Study of the Hokien and Tamil Skull"); Mr. J. B. Shoemaker (Thesis—"The Influence of the Nature and Position of Atoms in Organic Compounds on the Reactivity of other Atoms in the Molecule").

LONDON.—Mr. J. S. Huxley, fellow of New College, Oxford, and senior demonstrator in the Department of Comparative Anatomy, has been appointed to the University chair of zoology tenable at King's College. Prof. Huxley was educated at Balliol College, Oxford, where he was Brakenbury Scholar, and also studied at the *Stazione Zoologica*, Naples, and at Munich and Heidelberg. From 1913 until 1919 he was assistant professor of biology in the Rice Institute, Texas, where he entirely organised the Department of Biology. He helped to organise and took part in the first Oxford Expedition to Spitzbergen in 1921, and in 1924 he visited numerous universities in Canada and the United States. His publications include: "The Individual in the Animal Kingdom" (1911), "Essays of a Biologist" (1924), and numerous papers in the *Philosophical Transactions* and *Proceedings of the Royal Society*, the *Quarterly Journal of Microscopical Science*, and in other scientific journals; he is also assistant editor of the *British Journal of Experimental Biology*.

Dr. L. Rodwell Jones, Cassell lecturer in commerce in the London School of Economics, has been appointed to the University chair of geography tenable at the School.

Mr. E. C. Titchmarsh, senior lecturer in mathematics at University College, has been appointed to the University readership in mathematical analysis tenable at the College. Mr. Titchmarsh had a distinguished career in mathematics at Balliol College, Oxford, and is the author of numerous papers in the *Proceedings of the Royal Society*, *London Mathematical Society*, and the *Cambridge Philosophical Society*.

The title of reader in medical protozoology in the University has been conferred on Mr. J. G. Thomson, lecturer in protozoology at the London School of Tropical Medicine since 1914, in respect of the post held by him at the London School of Hygiene and Tropical Medicine. He has held the following posts:—Durning Lawrence Research Fellow, 1909, and Clinical and Pathological Research Fellow, 1913, Liverpool School of Tropical Medicine; Beit Memorial Fellowship, 1914; Protozoologist, Central Laboratory, Alexandria, 1915; Pathologist, 17th General Hospital.

The Degree of *D.Sc.* in botany has been conferred on Mr. Krishnadas Bagchee (Imperial College—Royal College of Science), for a thesis entitled "Cytology

of the Ascomycetes. *Pustularia bolarioides* Ramst. I. Spore Development."

THE Association of University Teachers announces in the June number of the *University Bulletin* the constitution of a Joint Standing Committee and inquiry office for promoting co-operation between university libraries. The inquiry officer is Mr. L. T. Oldaker, The Library, University, Edmund Street, Birmingham. Another interesting announcement which appears in the *Bulletin* is that the Council of University College, Reading, has decided, following the example set by Birmingham and already followed by Armstrong College, to form a standing Research Board to take responsibility for the promotion of research and the allocation of available funds. Evidence of the strength of the movement for promoting associations of university *alumni* and *alumnae* is afforded by the announcement that the membership of the Leeds University Old Students' Association has increased since February 1924 from 500 to 1000.

THE Air Ministry announces that seven hundred aircraft apprentices, between the ages of fifteen and sixteen and a half years, are required by the Royal Air Force for entry to the Aircraft Apprentice School at Halton, Bucks, in January next. These apprentices, who must be well educated and physically fit, will be engaged as the result of two examinations, one an open competition conducted by the Civil Service Commissioners, and the other a limited competition carried out by the Air Ministry in conjunction with the local education authorities throughout the country. Since the aircraft apprentice scheme was inaugurated in 1920 approximately 2000 boys have completed their training and are now at work in service squadrons both at home and abroad, while approximately 3000 boys are now regularly undergoing training. Application to sit in the open competition must be made to the Secretary, Civil Service Commission, Burlington Gardens, W. 1, not later than September 3. Candidates for the limited examination should make application, if they are still at school, to their headmasters with the view of securing a nomination from the education authority responsible for the school. If they have left school, application should be made to the Advisory Committee for Juvenile Employment in their area. Applications must be received by the Air Ministry from nominating bodies by October 6. The syllabus for both examinations consists of mathematics, experimental science, English and a general paper. Copies of the regulations for entry (A.P. 134) can be obtained on application to the Secretary (M. 1), Air Ministry, Kingsway, W.C.2.

EDUCATIONAL research in America is greatly helped and stimulated by the publication by the Bureau of Education at short intervals of up-to-date bibliographies. We have just received a 30-page pamphlet giving some 500 references on higher education. There are no less than twenty references on the application of intelligence tests to candidates for admission to college and to undergraduates. In Columbia College intelligence tests have been used continuously since 1919 and have been found very useful. The Thorndike test of intelligence for high-school graduates has been found the best single criterion for admission to the college, and the Thorndike special intelligence test, used in the Columbia Law School, predicts success in the school better than the average college grade does. These and other similar data were published in an article by the assistant professor of educational research in Columbia University contributed to the March issue of *School Life*.